

**Active Region Evolutions and Flare Activities :
From the Photosphere to the Corona**

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The formation process of magnetic shear is a key to understand the physical mechanism of solar flare occurrence. In order to examine such a process, we need observational data of active region evolution from the photosphere to the corona. In this paper, we study active region evolutions and its relation with flare activities, using H-alpha images obtained at Hida and Kwasan Observatories and white light images with Transition Region And Coronal Explorer (TRACE). We also use the Solar and Heliospheric Observatory (SOHO) / Michelson Doppler Imager (MDI) intensitygram and longitudinal magnetogram for investigation of photospheric structures of active regions. Coronal structures of the regions are studied by using extreme ultraviolet (EUV) images obtained with SOHO and TRACE.

We investigate the evolution of the several active regions. We mainly report the evolution of the active region NOAA 8948 (April 2000) and discuss the relation between evolutionary characteristics and its flare activities. Many H-alpha sub-flares and several X-ray (C- and M-class) flares occurred in this active region. We suggest that the flares are triggered by the magnetic flux emergence that forms new sunspots in the following part of the active region.

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